

US EPA ARCHIVE DOCUMENT

**STATE INNOVATION GRANT PRE-PROPOSAL  
BY  
THE MARYLAND DEPARTMENT OF THE ENVIRONMENT**

**SUMMARY INFORMATION**

**Project Title:** Development of a Statewide Watershed Permitting/Trading Program for Nutrients Discharged by Point Sources in Maryland.

**Applicant:** Maryland Department of the Environment. Water Management Administration. Wastewater Permits Program. MDE is the principal environmental regulatory agency in Maryland.

**Project Contact:**

**RCRA Involvement:** The project proposal has no component related to hazardous waste management or permitting under the Resource Conservation and Recovery Act.

**Collateral Federal Funding:** The project will be executed through NPDES program staff that receive partial funding from the federal 106 grant.

**Regulatory Flexibility Needs:** EPA's Watershed-Based NPDES Permitting Policy Statement and Water Quality Trading Policy both support a holistic watershed management approach. The watershed permitting/trading process to be developed under this grant should conform with and support both policies.

**Approval of the project by the Secretary:** The Secretary of the Department, Kendl P. Philbrick, has selected and endorsed this proposed innovative permitting effort for grant funding under the State Innovation Grant Program.

# BUDGET

**STATE:** Maryland  
**AGENCY:** Department of Environment  
**PROJECT TITLE:** Development of a Statewide Watershed Permitting/Trading Program for Point Sources of Nutrients in Maryland

*<Budgetary Information Withheld by U.S. EPA>*

## DELIVERABLES

1. White paper which outlines Maryland's position on Watershed Permitting/Trading. The document is to provide talking points as the basis for public participation through a workgroup.
2. Listing of stakeholder group membership and agenda for 1<sup>st</sup> meeting.
3. Written criteria and administrative procedures to implement Trading.
4. Written protocol for assigning nutrient values for septic system effluent elimination.
5. Draft model permit.

## PRE-PROPOSAL NARRATIVE

It is difficult to overstate the importance of reducing the nutrient load discharged to the waterways of Maryland. The excess of nutrients has caused impairments to numerous local water bodies and needs to be addressed on a watershed basis. The eventual impact on the Chesapeake Bay is also a critical component of point source discharges. A key factor in meeting this major regulatory and economic challenge will be the development of new NPDES permitting techniques and procedures. Watershed based permitting and load trading offer benefits in terms of saving time and money that must be embraced to facilitate the movement to wide scale implementation of state-of-the-art nutrient removal technologies.

The Wastewater Permits Program in the Maryland Department of the Environment is experienced in issuing individual NPDES permits with water quality based limits on nitrogen and phosphorus to deal with local impairments across the State. In-house water quality modeling and, more recently, TMDLs have supported this work. The experience gained in controlling both nitrogen and phosphorus with NPDES permitting will allow us to develop watershed permitting and trading techniques to accomplish nutrient reduction on a large-scale basis.

In Maryland, updated watershed plans (tributary strategies) are being finalized for the 10 major watersheds of the Chesapeake Bay. Large reductions in both point and non-point sources of nutrients will be slated to meet the nutrient load allocation assigned to each watershed. Point sources have dropped their nitrogen loads by 15.1 million pounds per year since 1985, primarily with the installation of Biological Nitrogen Removal technology, but now an additional 7.5 million pounds of reductions must be obtained by point sources. About 66 wastewater plants and a dozen significant industrial dischargers will be impacted by the new requirement.

Given the number of facilities that will have to meet new nutrient limits, the watershed permitting approach offers multiple benefits. MDE and the regulated community have studied the watershed approaches under way at Long Island Sound and in North Carolina. Several of their permitting features would appear to work well in Maryland, but we have additional ideas that should enhance the effectiveness of the watershed approach. The principles we will base the permitting program on include:

- 1) The watershed permit loads are “pre-determined” by the water quality plans (trib strategies). Every major discharger must face a requirement to provide the high level nutrient removal assigned by the strategy. However, as an alternative, dischargers may voluntarily join together to meet the overall watershed nutrient load. They would work (trade) among themselves to take advantage of economies of scale, the adaptability of some systems to the addition of nutrient removal, and the pre-existing need for some systems to grow and be upgraded at this time. Not every system must be upgraded at this time to meet the watershed load requirement. Some can upgrade later to offset load increases that would

- otherwise occur in the watershed due to growth. A benefit of this approach is it allows the permittees to determine who should upgrade now and who later. Their decisions will have to be reached ahead of watershed permit issuance and will provide the upgrade schedules included in the permit.
- 2) The watershed permit will hold every member individually accountable for meeting the overall load limit and the individual member upgrade schedules. The schedules will be included in the watershed permit when issued.
  - 3) Attainment of water quality should not depend on every discharger signing on to a watershed permit. Also, MDE should not require permittees to be covered by a watershed permit and delay the issuance of such permits while reluctant dischargers are brought into line. Some municipalities will prefer an individual permit and others may prefer to form small watershed groups. For these reasons, the permitting system needs to accommodate individual permittees and sub-watershed sized groups. Since our trib strategies will provide individual and watershed load allocations, sub-watershed or “bubble” permits can be based on the combined allocation of the members.
  - 4) Underlying individual discharge permits will continue in force and will not be reopened to refer to an overlying watershed permit. The watershed permit will deal only with nutrients. Its nutrient provisions will supersede any less restrictive provisions in an underlying individual permit. The individual permits will deal with all other NPDES requirements. It would not be feasible for MDE to reopen dozens of individual permits to implement the new watershed requirements. The exception will be for facilities that decline to become a co-permittee in a watershed permit. Their permits will have to be reopened to receive the new nutrient provisions.
  - 5) Trading can occur between the stakeholders to decide who will upgrade and under what schedule when a watershed permit is being developed. It can also occur between individual facilities not in a watershed permit. For that type of trading and trading involving credit for taking septic systems out of service, transferring loads between plants owned by the same entity, expanding design capacity for those that treat to lower levels than required, ground rule protocols will have to be developed.

## MEETING PROGRAM CRITERIA

### 5.2.1. Priority Environmental Issues

In the implementation of the Clean Water Act, few issues have become as important or as vexing as the reduction of nutrients to the levels needed to restore water quality. A new approach combining free market concepts such as trading with innovative permitting ideas will have to be developed for this challenge. Certainly the watershed permitting and trading principles put into play in Maryland can be translated to the entire Chesapeake Bay watershed and should be of considerable interest in other areas of the country, particularly the mid west with its Gulf of Mexico anoxic zone.

One of the main advantages of this project will be to harness the potential for trading. Nutrient trading, especially market based versions, has received much interest but has not yet produced much of practical value for water quality programs. Trading covers a wide range of concepts, but some of the ideas have not received credibility within the environmental community. One aspect, point to point trading, can be done in a credible manner, is compatible with the Clean Water Act, and could be implemented now. This proposal will allow POTWS in a watershed to figure out the most cost effective way to implement nutrient reductions and it will provide incentives for those who want to do more than is required without the State having to operate an elaborate trading program.

### 5.2.2 Likely Improvements from Project Implementation

The goal of this project is to produce a permitting protocol that will facilitate the implementation of state of the art nutrient removal at point sources in Maryland on a wide spread basis and achieve the point source nutrient reduction requirements of our watershed plans. The number of facilities in the state that will have to upgrade under a Clean Water Act permitting action over the next few years is unprecedented. By developing innovative permitting techniques, we will try to avoid a large expansion in the bureaucracy, allow the regulated community to participate in deciding on the most effective ways to tackle the problem and include various stakeholders, including environmental interest groups in the decision making process.

#### 5.2.2.1 How is the project unique?

The development of watershed permit protocols for use across the state, not just in a pilot area, will be unprecedented. Compared with the issuance of individual permits and the setting of individual nutrient limits, the use of area or watershed permits should provide a significant way to facilitate the achievement of the watershed nutrient reduction requirements.

#### 5.2.2.2 How does the project build on prior experience?

MDE has been issuing individual discharge permits controlling nutrients, including nitrogen, for small watersheds for some time. This work can be built upon to develop provisions for wide scale watershed and bubble permitting. Commentaries on various trading concepts have become fairly abundant recently. It has helped us focus on the ideas that are practical, should have credibility and would conform to Clean Water Act procedures.

#### 5.2.2.3 What environmental improvements are expected?

Developing watershed permitting procedures and protocols offer the best available opportunity to facilitate the installation of nutrient removal technology on a wide scale basis in a timely fashion. This will reduce the discharge of nutrients from point sources by millions of pounds a year and help achieve the point source goals of our watershed plans.

#### 5.2.2.4 What will be the improvements in program efficiency?

By not having to reopen dozens of individual permits, the savings to the program should be significant. A quantifiable estimate should be available when we learn how many facilities elect to be covered under a watershed permit. Also, by focusing on the most practical aspects of trading there should be no need to operate a large scale-trading program at the state level.

#### 5.2.2.5 What will be the savings to the regulated entities?

POTWS have estimated they will save millions of dollars by being able maximize the use of the most cost effective facilities through trading. More precise numbers should become evident when compliance and facility upgrade schedules are developed.

#### 5.2.3. Measuring improvement and accountability?

Under this project, reports on implementing watershed trading and permitting in Maryland will be produced. The documents will be prepared with input from the public and stakeholders. Criteria and procedures for implementing trading in the state will be included as will examples of the watershed, bubble, and individual permits that will be used. All of this will be developed within one to three years. Long term results (5 to 10) years will be the implementation of watershed permitting and trading in Maryland and the associated reduction in nutrient loads from point sources. The new permitting methods will be relied upon to facilitate the removal of another 7.5 million lbs per year of nitrogen and 220,000 lbs of phosphorus from our waterways.

#### 5.2.4. Transferring Innovation

This work should have widespread applicability. Watershed permitting is just beginning in this region and the new types of permits and associated trading protocols coming out of this project will be directly applicable to a variety of situations from local TMDLs to watersheds covering thousands of square miles in all the Chesapeake Bay watershed states. It will provide tools to help the next generation of environmental protection move up the learning curve. MDE maintains extensive communication with Region III and the Mid-Atlantic States regarding permitting issues. At regional meetings and by electronic transfer, useful information now moves readily between interested parties. The materials developed under this project will be of prime interest to Region III and the other states in the area. All of these entities are now grappling with the nutrient reduction issue and many of their waterways are tributary to Maryland waters. It will be in our interest to provide them with the materials we develop for dealing with the permitting and trading aspects of dealing with the nutrient problem.

## PROJECT SCHEDULE

**Start Date:** April 1, 2004

**Completion:** July 1, 2005

**Total Project Time: 15 months = 45**

